WEST Search History

Hide Items | Restore | Clear | Cancel

DATE: Thursday, August 02, 2007

Hide?	Set Name	Query	Hit Count
		DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI; PLUR=YES; OP=OR	
☐	L2	emulsan near5 (link$ or conjugat$ or coupl$ or carrier or join$ or $conjugate)	32
☐	L1	bacillosamine	7

END OF SEARCH HISTORY

N-acetylgalactosamine

N-acetylhexosamines

2-acetylamino-2-deoxy-beta-D- glucopyranosyl
2-acetamido-2-deoxygalactose

0048] Gal=galactosyl; [0049] GalNAc=N-acetylgalactosaminyl; [0050] Glc=glucosyl; [0051] GlcNAc=N-acetylglucosaminyl;

QuipNAc4NAc, bacillosamine; N-acetylbacillosamine

2,4-diacetamido-2,4,6-trideoxy-beta-D-glucopyranose (QuipNAc4NAc, bacillosamine)
2,4-diamino-2,4,6-trideoxy-D-glucose
2,4 diamino, 6-deoxy glucosen

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*** DIALINDEX search results display in an abbreviated ***
*** format unless you enter the SET DETAIL ON command. ***
? sf allscience
   You have 299 files in your file list.
   (To see banners, use SHOW FILES command)
? s au=blaser? and campylobact?

Your SELECT statement is:
   s au=blaser? and campylobact?

          Items   File
          -----   ----
            233     5: Biosis Previews(R)_1926-2007/Jul W5
             47     6: NTIS_1964-2007/Jul W5
              1     8: Ei Compendex(R)_1884-2007/Jul W3
             19    10: AGRICOLA_70-2007/Jul
            150    24: CSA Life Sciences Abstracts_1966-2007/Jun
            173    34: SciSearch(R) Cited Ref Sci_1990-2007/Jul W5
              2    40: Enviroline(R)_1975-2007/Jun
              3    41: Pollution Abstracts_1966-2007/Jun
              8    45: EMCare_2007/Jul W3
              1    47: Gale Group Magazine DB(TM)_1959-2007/Jul 19
             56    50: CAB Abstracts_1972-2007/Jun
             19    51: Food Sci.&Tech.Abs_1969-2007/Jul W5
             20    53: FOODLINE(R): Science_1972-2007/Aug 01
             30    65: Inside Conferences_1993-2007/Aug 01
             46    71: ELSEVIER BIOBASE_1994-2007/Jul W5
            152    73: EMBASE_1974-2007/Jul 26
              3    74: Int.Pharm.Abs_1970-2007/Jun B2
      Examined  50 files
             14    98: General Sci Abs_1984-2007/Jul
             13   143: Biol. & Agric. Index_1983-2007/Jun
            175   144: Pascal_1973-2007/Jul W3
              1   148: Gale Group Trade & Industry DB_1976-2007/Jul 26
              7   149: TGG Health&Wellness DB(SM)_1976-2007/Jul W3
            161   155: MEDLINE(R)_1950-2007/Jul 30
             33   156: ToxFile_1965-2007/Jul W4
            136   162: Global Health_1983-2007/Jun
              1   174: Pharm-line(R)_1978-2002/Dec W3
      Examined 100 files
              2   203: AGRIS_1974-2007/May
              1   245: WATERNET(TM)_1971-2007Mar
              1   266: FEDRIP_2007/Jul
              7   285: BioBusiness(R)_1985-1998/Aug W1
              3   315: ChemEng & Biotec Abs_1970-2007/Jul
      Examined 150 files
              7   340: CLAIMS(R)/US Patent_1950-07/Jul 26
              3   342: Derwent Patents Citation Indx_1978-07/200747
              3   345: Inpadoc/Fam.& Legal Stat_1968-2007/UD=200729
              4   348: EUROPEAN PATENTS_1978-2007/ 200729
             10   349: PCT FULLTEXT_1979-2007/UB=20070726UT=20070719
              5   357: Derwent Biotech Res.__1982-2007/Jul W4
              3   358: Current BioTech Abs_1983-2006/Jan
              4   390: Beilstein Database - Facts_2007/Q1
            134   399: CA SEARCH(R)_1967-2007/UD=14706
             97   434: SciSearch(R) Cited Ref Sci_1974-1989/Dec
            260   440: Current Contents Search(R)_1990-2007/Jul 31
              4   444: New England Journal of Med._1985-2007/Jul W3
      Examined 200 files
             11   484: Periodical Abs Plustext_1986-2007/Jul W5
      Examined 250 files
             19   654: US PAT.FULL._1976-2007/JUL 26

   45 files have one or more items; file list includes 299 files.
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   One or more terms were invalid in 144 files.

? save temp
Temp SearchSave "TF452545743" stored
? rf
Your last SELECT statement was:
   S AU=BLASER? AND CAMPYLOBACT?

Ref         Items   File
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N1            260   440: Current Contents Search(R)_1990-2007/Jul 31
N2            233     5: Biosis Previews(R)_1926-2007/Jul W5
N3            175   144: Pascal_1973-2007/Jul W3
N4            173    34: SciSearch(R) Cited Ref Sci_1990-2007/Jul W5
N5            161   155: MEDLINE(R)_1950-2007/Jul 30
N6            152    73: EMBASE_1974-2007/Jul 26
N7            150    24: CSA Life Sciences Abstracts_1966-2007/Jun
N8            136   162: Global Health_1983-2007/Jun
N9            134   399: CA SEARCH(R)_1967-2007/UD=14706
N10            97   434: SciSearch(R) Cited Ref Sci_1974-1989/Dec
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   S AU=BLASER? AND CAMPYLOBACT?

Ref         Items   File
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N11            56    50: CAB Abstracts_1972-2007/Jun
N12            47     6: NTIS_1964-2007/Jul W5
N13            46    71: ELSEVIER BIOBASE_1994-2007/Jul W5
N14            33   156: ToxFile_1965-2007/Jul W4
N15            30    65: Inside Conferences_1993-2007/Aug 01
N16            20    53: FOODLINE(R): Science_1972-2007/Aug 01
N17            19    10: AGRICOLA_70-2007/Jul
N18            19    51: Food Sci.&Tech.Abs_1969-2007/Jul W5
N19            19   654: US PAT.FULL._1976-2007/JUL 26
N20            14    98: General Sci Abs_1984-2007/Jul
   45 files have one or more items; file list includes 299 files.

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Your last SELECT statement was:
   S AU=BLASER? AND CAMPYLOBACT?

Ref         Items   File
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N21            13   143: Biol. & Agric. Index_1983-2007/Jun
N22            11   484: Periodical Abs Plustext_1986-2007/Jul W5
N23            10   349: PCT FULLTEXT_1979-2007/UB=20070726UT=20070719
N24             8    45: EMCare_2007/Jul W3
N25             7   149: TGG Health&Wellness DB(SM)_1976-2007/Jul W3
N26             7   285: BioBusiness(R)_1985-1998/Aug W1
N27             7   340: CLAIMS(R)/US Patent_1950-07/Jul 26
N28             5   357: Derwent Biotech Res.__1982-2007/Jul W4
N29             4   348: EUROPEAN PATENTS_1978-2007/ 200729
N30             4   390: Beilstein Database - Facts_2007/Q1
   45 files have one or more items; file list includes 299 files.

        - Enter P or PAGE for more -
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   S AU=BLASER? AND CAMPYLOBACT?
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6/9/1 (Item 1 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

13439124 PMID: 11673436
Campylobacter fetus uses multiple loci for DNA inversion within the 5' conserved regions of sap homologs.
Tu Z C; Ray K C; Thompson S A; Blaser M J
Division of Infectious Diseases, Department of Medicine, New York University School of Medicine, New York, New York 10016, USA.
Journal of bacteriology (United States) Nov 2001, 183 (22) p6654-61, ISSN 0021-9193--Print Journal Code: 2985120R
Contract/Grant Number: R01 AI24145; AI; NIAID; R29 AI43548; AI; NIAID
Publishing Model Print
Document type: Journal Article; Research Support, U.S. Gov't, P.H.S.
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed
Subfile: INDEX MEDICUS; Toxbib
Campylobacter fetus cells possess multiple promoterless sap homologs, each capable of expressing a surface layer protein (SLP) by utilizing a unique promoter present on a 6.2-kb invertible element. Each sap homolog includes a 626-bp 5' conserved region (FCR) with 74 bp upstream and 552 bp within the open reading frame. After DNA inversion, the splice is seamless because the FCRs are identical. In mutant strain 23D:ACA2K101, in which sapA and sapA2 flanking the invertible element in opposite orientations were disrupted by promoterless chloramphenicol resistance (Cm(r)) and kanamycin resistance (Km(r)) cassettes, respectively, the frequency of DNA inversion is 100-fold lower than that of wild-type strain 23D. To define the roles of a 15-bp inverted repeat (IR) and a Chi-like site (CLS) in the FCR, we mutagenized each upstream of sapA2 in 23D:ACA2K101 by introducing NotI and KpnI sites to create strains 23D:ACA2K101N and 23D:ACA2K101K, respectively. Alternatively selecting colonies for Cm(r) or Km(r) showed that mutagenizing the IR or CLS had no apparent effect on the frequency of the DNA inversion. However, mapping the unique NotI or KpnI site in relation to the Cm(r) or Km(r) cassette in the cells that changed phenotype showed that splices occurred both upstream and downstream of the mutated sites. PCR and sequence analyses also showed that the splice could occur in the 425-bp portion of the FCR downstream of the cassettes. In total, these data indicate that C. fetus can use multiple sites within the FCR for its sap-related DNA inversion.
Descriptors: *Bacterial Outer Membrane Proteins--genetics--GE; *Bacterial Proteins; *Campylobacter fetus--genetics--GE; *Inversion, Chromosome; *Membrane Glycoproteins; 5' Untranslated Regions--genetics--GE; DNA, Bacterial--genetics--GE; Mutagenesis, Insertional; Mutation; Promoter Regions (Genetics); Recombination, Genetic
CAS Registry Number: 0 (5' Untranslated Regions); 0 (Bacterial Outer Membrane Proteins); 0 (Bacterial Proteins); 0 (DNA, Bacterial); 0 (Membrane Glycoproteins); 0 (surface array protein, bacteria)
Record Date Created: 20011023
Record Date Completed: 20011204

6/9/2 (Item 2 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

13144482 PMID: 11254579
Evidence that the Campylobacter fetus sap locus is an ancient genomic constituent with origins before mammals and reptiles diverged.
Tu Z C; Dewhirst F E; Blaser M J
Division of Infectious Diseases, Department of Medicine, Vanderbilt University School of Medicine, Nashville, Tennessee, USA.
Infection and immunity (United States) Apr 2001, 69 (4) p2237-44,

ISSN 0019-9567--Print Journal Code: 0246127
Contract/Grant Number: R01 A124145; PHS
Publishing Model Print
Document type: Journal Article; Research Support, U.S. Gov't, P.H.S.
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed
Subfile: INDEX MEDICUS

Campylobacter fetus bacteria, isolated from both mammals and reptiles, may be either subsp. fetus or subsp. venerealis and either serotype A or serotype B. ***Surface*** layer proteins, expressed and secreted by genes in the sap locus, play an important role in C. fetus virulence. To assess whether the sap locus represents a pathogenicity island and to gain further insights into C. fetus evolution, we examined several C. fetus genes in 18 isolates. All of the isolates had 5 to 9 sapA or sapB homologs. One strain (85-387) possessed both sapA and sapB homologs, suggesting a recombinational event in the sap locus between sapA and sapB strains. When we amplified and analyzed nucleotide sequences from portions of housekeeping gene recA (501 bp) and sapD (450 bp), a part of the 6-kb sap invertible element, the phylogenies of the genes were highly parallel. Among the 15 isolates from mammals, serotype A and serotype B strains generally had consistent positions. The fact that the serotype A C. fetus subsp. fetus and subsp. venerealis strains were on the same branch suggests that their differentiation occurred after the type A-type B split. Isolates from mammals and reptiles formed two distinct tight phylogenetic clusters that were well separated. Sequence analysis of 16S rRNA showed that the reptile strains form a distinct phylotype between mammalian C. fetus and ***Campylobacter*** hyointestinalis. The phylogenies and sequence results showing that sapD and recA have similar G + C contents and substitution rates suggest that the sap locus is not a pathogenicity island but rather is an ancient constituent of the C. fetus genome, integral to its biology.

Descriptors: *Campylobacter fetus--genetics--GE; *Chromosome Mapping; *Evolution; *Genome, Bacterial; Amino Acid Sequence; Bacterial Typing Techniques; Base Sequence; Campylobacter fetus--classification --CL; Molecular Sequence Data; Phylogeny; RNA, Ribosomal, 16S--genetics--GE ; Variation (Genetics)
CAS Registry Number: 0 (RNA, Ribosomal, 16S)
Record Date Created: 20010320
Record Date Completed: 20010412

6/9/3 (Item 3 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

12905025 PMID: 11035721
Detection and characterization of autoagglutination activity by ***Campylobacter*** jejuni.
Misawa N; Blaser M J
Division of Infectious Diseases, Vanderbilt University School of Medicine, A-3310 Medical Center North, Nashville, Tennessee 37232, USA. a0d901u@cc.miyazaki-u.ac.jp
Infection and immunity (UNITED STATES) Nov 2000, 68 (11) p6168-75,
ISSN 0019-9567--Print Journal Code: 0246127
Publishing Model Print
Document type: Journal Article; Research Support, Non-U.S. Gov't; Research Support, U.S. Gov't, Non-P.H.S.
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed
Subfile: INDEX MEDICUS

In several gram-negative bacterial pathogens, autoagglutination (AAG) activity is a marker for interaction with host cells and virulence.

Campylobacter jejuni strains also show AAG, but this property varies considerably among strains. To examine the characteristics of C. jejuni AAG, we developed a quantitative in vitro assay. For strain 81-176, which shows high AAG, activity was optimal for cells grown for < or = 24 h, was independent of growth temperature, and was best measured for cells suspended in phosphate-buffered saline at 25 degrees C for 24 h. AAG activity was heat labile and was abolished by pronase or acid-glycine (pH 2.2) treatment but not by lipase, DNase, or sodium metaperiodate. Strain 4182 has low AAG activity, but extraction with water increased AAG, suggesting the loss of an inhibitor. Strain 6960 has weak AAG with no effect due to water extraction. Our study with clinical isolates suggests that C. jejuni strains may be grouped into three AAG phenotypes. A variant derived from strain 81116 that is flagellate but immotile showed the strong AAG exhibited by the parent strain, suggesting that motility per se is not necessary for the AAG activity. AAG correlated with both bacterial hydrophobicity and adherence to INT407 cells. Mutants which lack flagella (flaA, flaB, and flbA) or common cell surface antigen (pebIA) were constructed in strain 81-176 by natural transformation-mediated allelic exchange. Both AAG activity and bacterial hydrophobicity were abolished in the aflagellate mutants but not the pebIA mutant. In total, these findings indicate that C. jejuni AAG is highly associated with flagellar expression.

Descriptors: *Agglutination; *Campylobacter jejuni--pathogenicity --PY; Bacterial Adhesion; Cell Line; Flagella--physiology--PH; Humans

Record Date Created: 20001115

Record Date Completed: 20001115

6/9/4 (Item 4 from file: 155)

DIALOG(R)File 155:MEDLINE(R)

12869236 PMID: 10992468

Campylobacter fetus sap inversion occurs in the absence of RecA function.

Ray K C; Tu Z C; Grogono-Thomas R; Newell D G; Thompson S A; Blaser M J

Vanderbilt University School of Medicine and VA Medical Center, Nashville, Tennessee, USA.

Infection and immunity (UNITED STATES) Oct 2000, 68 (10) p5663-7, ISSN 0019-9567--Print Journal Code: 0246127

Contract/Grant Number: R01 AI 24145; AI; NIAID; R29-A143548; PHS

Publishing Model Print

Document type: Journal Article; Research Support, Non-U.S. Gov't; Research Support, U.S. Gov't, Non-P.H.S.; Research Support, U.S. Gov't, P.H.S.

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Subfile: INDEX MEDICUS; Toxbib

Phase variation of Campylobacter fetus surface layer proteins (SLPs) occurs by inversion of a 6.2-kb DNA segment containing the unique sap promoter, permitting expression of a single SLP-encoding gene. Previous work has shown that the C. fetus sap inversion system is RecA dependent. When we challenged a pregnant ewe with a recA mutant of wild-type C. fetus (strain 97-211) that expressed the 97-kDa SLP, 15 of the 16 ovine-passaged isolates expressed the 97-kDa protein. However, one strain (97-209) expressed a 127-kDa SLP, suggesting that chromosomal rearrangement may have occurred to enable SLP switching. Lack of RecA function in strains 97-211 and 97-209 was confirmed by their sensitivity to the DNA-damaging agent methyl methanesulfonate. Southern hybridization and PCR of these strains indicated that the aphA insertion into recA was stably present. However, Southern hybridizations demonstrated that in strain 97-209 inversion had occurred in the sap locus. PCR data confirmed inversion of the 6.2-kb DNA element and indicated that in these recA mutants the sap inversion

frequency is reduced by 2 to 3 log(10) units compared to that in the wild type. Thus, although the major sap inversion pathway in C. fetus is RecA dependent, alternative lower-frequency, RecA-independent inversion mechanisms exist.

Tags: Female

Descriptors: *Bacterial Proteins--genetics--GE; *Bacterial Proteins --metabolism--ME; *Campylobacter fetus--genetics--GE; *DNA, Bacterial --genetics--GE; *Membrane Glycoproteins; *Rec A Recombinases--metabolism --ME; *Recombination, Genetic; Animals; Blotting, Southern; Campylobacter fetus--drug effects--DE; Campylobacter fetus --metabolism--ME; Inversion, Chromosome; Methyl Methanesulfonate --pharmacology--PD; Mutagens--pharmacology--PD; Polymerase Chain Reaction; Pregnancy; Rec A Recombinases--genetics--GE; Sheep

CAS Registry Number: 0 (Bacterial Proteins); 0 (DNA, Bacterial); 0 (Membrane Glycoproteins); 0 (Mutagens); 0 (surface array protein, bacteria); 66-27-3 (Methyl Methanesulfonate)

Enzyme Number: EC 2.7.7.- (Rec A Recombinases)

Record Date Created: 20001103

Record Date Completed: 20001103

6/9/5 (Item 5 from file: 155)

DIALOG(R)File 155:MEDLINE(R)

12619766 PMID: 10678989

Roles of the surface layer proteins of Campylobacter fetus subsp. fetus in ovine abortion.

Grogono-Thomas R; Dworkin J; Blaser M J; Newell D G

Department of Farm Animal, Royal Veterinary College, Hertfordshire, United Kingdom.

Infection and immunity (UNITED STATES) Mar 2000, 68 (3) p1687-91, ISSN 0019-9567--Print Journal Code: 0246127

Contract/Grant Number: R01 AI 24145; AI; NIAID

Publishing Model Print

Document type: Journal Article; Research Support, Non-U.S. Gov't; Research Support, U.S. Gov't, P.H.S.

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Subfile: INDEX MEDICUS

The role of the surface (S)-layer proteins of Campylobacter fetus subsp. fetus has been investigated using an ovine model of abortion. Wild-type strain 23D induced abortion in up to 90% of pregnant ewes challenged subcutaneously. Isolates recovered from both dams and fetuses expressed S-layer proteins with variable molecular masses. The spontaneous S-layer-negative variant, strain 23B, neither colonized nor caused abortions in pregnant ewes. A series of isogenic sapA and recA mutants, derived from 23D, also were investigated in this model. A mutant (501 [sapA recA(+)]) caused abortion in one of five challenged animals and was recovered from the placenta of a second animal. Another mutant (502 [sapA recA]) with no S-layer protein expression caused no colonization or abortions in challenged animals but caused abortion when administered intraplacentally. Mutants 600(2) and 600(4), both recA, had fixed expression of 97- and 127-kDa S-layer proteins, respectively. Two of the six animals challenged with mutant 600(4) were colonized, but there were no abortions. As expected, all five strains recovered expressed a 127-kDa S-layer protein. In contrast, mutant 600(2) was recovered from the placentas of all five challenged animals and caused abortion in two. Unexpectedly, one of the 16 isolates expressed a 127-kDa rather than a 97-kDa S-layer protein. Thus, these studies indicate that S-layer proteins appear essential for colonization and/or translocation to the placenta but are not required to mediate fetal injury and that S-layer variation may occur in a recA strain.

Tags: Female
Descriptors: *Abortion, Veterinary--etiology--ET; *Bacterial Proteins --physiology--PH; *Campylobacter fetus--pathogenicity--PY; *Membrane Glycoproteins; Animals; Bacterial Proteins--analysis--AN; Campylobacter%%% fetus--chemistry--CH; Molecular Weight; Pregnancy; Rabbits; Rec A Recombinases--analysis--AN; Sheep
*** CAS Registry Number: 0 (Bacterial Proteins); 0 (Membrane Glycoproteins);***
0 (surface array protein, bacteria)
*** Enzyme Number: EC 2.7.7.- (Rec A Recombinases)***
Record Date Created: 20000316
Record Date Completed: 20000316

6/9/6 (Item 6 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

12020920 PMID: 9851986
Campylobacter fetus surface layer proteins are transported by a type I secretion system.
Thompson S A; Shedd O L; Ray K C; Beins M H; Jorgensen J P; Blaser M J
Division of Infectious Diseases, Department of Medicine, Vanderbilt University School of Medicine, Nashville, Tennessee 37232-2605, USA. thompssa@ctrvax.vanderbilt.edu
Journal of bacteriology (UNITED STATES) Dec 1998, 180 (24) p6450-8, ISSN 0021-9193--Print Journal Code: 2985120R
Contract/Grant Number: R01A124145; PHS
Publishing Model Print
Document type: Journal Article; Research Support, U.S. Gov't, P.H.S.
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed
Subfile: INDEX MEDICUS; Toxbib
The virulence of Campylobacter fetus, a bacterial pathogen of ungulates and humans, is mediated in part by the presence of a paracrystalline surface layer (S-layer) that confers serum resistance. The subunits of the S-layer are S-layer proteins (SLPs) that are secreted in the absence of an N-terminal signal sequence and attach to either type A or B C. fetus lipopolysaccharide in a serospecific manner. Antigenic variation of multiple SLPs (encoded by sapA homologs) of type A strain 23D occurs by inversion of a promoter-containing DNA element flanked by two sapA homologs. Cloning and sequencing of the entire 6.2-kb invertible region from C. fetus 23D revealed a probable 5.6-kb operon of four overlapping genes (sapCDEF, with sizes of 1,035, 1,752, 1,284, and 1,302 bp, respectively) transcribed in the opposite direction from sapA. The four genes also were present in the invertible region of type B strain 84-107 and were virtually identical to their counterparts in the type A strain. Although SapC had no database homologies, SapD, SapE, and SapF had predicted amino acid homologies with type I protein secretion systems (typified by Escherichia coli HlyBD/TolC or Erwinia chrysanthemi PrtDEF) that utilize C-terminal secretion signals to mediate the secretion of hemolysins, leukotoxins, or proteases from other bacterial species. Analysis of the C termini of four C. fetus SLPs revealed conserved structures that are potential secretion signals. A C. fetus sapD mutant neither produced nor secreted SLPs. E. coli expressing C. fetus sapA and sapCDEF secreted SapA, indicating that the sapCDEF genes are sufficient for SLP secretion. C. fetus SLPs therefore are transported to the cell ***surface*** by a type I secretion system.
Descriptors: *Bacterial Outer Membrane Proteins--metabolism--ME; *Bacterial Proteins; *Campylobacter fetus--metabolism--ME; *Membrane Glycoproteins; Amino Acid Sequence; Bacterial Outer Membrane Proteins --classification--CL; Bacterial Outer Membrane Proteins--genetics--GE;

Base Sequence; Biological Transport; Campylobacter fetus--genetics --GE; Cloning, Molecular; Conserved Sequence; DNA, Bacterial; Escherichia coli--metabolism--ME; Gene Expression; Molecular Sequence Data; Multigene Family; Mutagenesis
Molecular Sequence Databank Number: GENBANK/AF027405; GENBANK/AF071883
CAS Registry Number: 0 (Bacterial Outer Membrane Proteins); 0 (Bacterial Proteins); 0 (DNA, Bacterial); 0 (Membrane Glycoproteins); 0 (surface array protein, bacteria)
Record Date Created: 19990128
Record Date Completed: 19990128

6/9/7 (Item 7 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

11563925 PMID: 9402015
Molecular mechanisms of Campylobacter fetus surface layer protein expression.
Dworkin J; Blaser M J
Department of Medicine, Vanderbilt University School of Medicine, Nashville, TN 37232, USA.
Molecular microbiology (ENGLAND) Nov 1997, 26 (3) p433-40, ISSN 0950-382X--Print Journal Code: 8712028
Contract/Grant Number: R01-AI24145; AI; NIAID
Publishing Model Print
Document type: Journal Article; Research Support, U.S. Gov't, Non-P.H.S.; Research Support, U.S. Gov't, P.H.S.; Review
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed
Subfile: INDEX MEDICUS
Cells of the Gram-negative bacteria Campylobacter fetus are covered by monomolecular arrays of surface layer proteins (SLPs) critical for both persistence in their natural hosts and for virulence. For C. fetus cells, expression of SLPs essentially eliminates C3b binding and their antigenic variation thwarts host immunological defences. Each cell possesses multiple partially homologous and highly conserved SLP gene cassettes, tightly clustered in the genome, that encode SLPs of 97-149 kDa. These attach non-covalently via a conserved N-terminus to the cell wall lipopolysaccharide. Recent studies indicate that C. fetus reassorts a single promoter, controlling SLP expression, and one, or more, complete open reading frame strictly by DNA inversion, and that rearrangement is independent of the distance between sites of inversion. In contrast to previously reported programmed DNA inversion systems, inversion in C. fetus is recA-dependent. These rearrangements permit variation in protein expression from the family of SLP genes and suggest an expanding paradigm of programmed DNA rearrangements among microorganisms. (52 Refs.)
Descriptors: *Bacterial Outer Membrane Proteins--genetics--GE; *Bacterial Proteins; *Campylobacter fetus--genetics--GE; *Gene Expression; *Membrane Glycoproteins; Animals; Antigenic Variation; Bacterial Outer Membrane Proteins--biosynthesis--BI; Bacterial Outer Membrane Proteins --immunology--IM; Campylobacter fetus--pathogenicity--PY; Chromosomes , Bacterial; DNA, Bacterial; Gene Rearrangement; Inversion, Chromosome; Promoter Regions (Genetics); Recombination, Genetic; Virulence
CAS Registry Number: 0 (Bacterial Outer Membrane Proteins); 0 (Bacterial Proteins); 0 (DNA, Bacterial); 0 (Membrane Glycoproteins); 0 (surface array protein, bacteria)
Record Date Created: 19980219
Record Date Completed: 19980219

6/9/8 (Item 8 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

11553153 PMID: 9393719
Nested DNA inversion of Campylobacter fetus S-layer genes is recA dependent.
Dworkin J; Shedd O L; Blaser M J
Department of Medicine, Vanderbilt University School of Medicine, Nashville, Tennessee 37232, USA.
Journal of bacteriology (UNITED STATES) Dec 1997, 179 (23) p7523-9, ISSN 0021-9193--Print Journal Code: 2985120R
Contract/Grant Number: R01-AI24145; AI; NIAID
Publishing Model Print
Document type: Journal Article; Research Support, U.S. Gov't, Non-P.H.S.; Research Support, U.S. Gov't, P.H.S.
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed
Subfile: INDEX MEDICUS; Toxbib
Wild-type strains of Campylobacter fetus are covered by a monomolecular array of surface layer proteins (SLPs) critical for virulence. Each cell possesses eight SLP gene cassettes, tightly clustered in the genome, that encode SLPs of 97 to 149 kDa. Variation of SLP expression occurs by a mechanism of nested DNA rearrangement that involves the inversion of a 6.2-kb sapA promoter-containing element alone or together with one or more flanking SLP gene cassettes. The presence of extensive regions of identity flanking the 5' and 3' ends of each SLP gene cassette and of a Chi-like recognition sequence within the 5' region of identity suggests that rearrangement of SLP gene cassettes may occur by a generalized (RecA-dependent) homologous recombination pathway. To explore this possibility, we cloned C. fetus recA and created mutant strains by marker rescue, in which recA is disrupted in either S+ or S- strains. These mutants then were assessed for their abilities to alter SLP expression either in the presence or absence of a complementary shuttle plasmid harboring native recA. In contrast to all previously reported programmed DNA inversion systems, inversion in C. fetus is recA dependent.
Descriptors: *Bacterial Outer Membrane Proteins--genetics--GE; *Bacterial Proteins; *Campylobacter fetus--genetics--GE; *Genes, Bacterial; *Inversion, Chromosome; *Membrane Glycoproteins; *Rec A Recombinases --metabolism--ME; Bacterial Outer Membrane Proteins--immunology--IM; Blood Bactericidal Activity; Campylobacter fetus--immunology--IM; Cloning, Molecular; Complement System Proteins; Methyl Methanesulfonate; Molecular Sequence Data; Multigene Family; Mutagens; Mutation; Rec A Recombinases --genetics--GE; Recombination, Genetic; Sequence Analysis, DNA
Molecular Sequence Databank Number: GENBANK/AF020677
CAS Registry Number: 0 (Bacterial Outer Membrane Proteins); 0 (Bacterial Proteins); 0 (Membrane Glycoproteins); 0 (Mutagens); 0 (surface array protein, bacteria); 66-27-3 (Methyl Methanesulfonate); 9007-36-7 (Complement System Proteins)
Enzyme Number: EC 2.7.7.- (Rec A Recombinases)
Record Date Created: 19971230
Record Date Completed: 19971230

6/9/9 (Item 9 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

11452565 PMID: 9276928
Molecular biology of S-layers.
Bahl H; Scholz H; Bayan N; Chami M; Leblon G; Gulik-Krzywicki T; Shechter E; Fouet A; Mesnage S; Tosi-Couture E; Gounon P; Mock M; Conway de Macario E; Macario A J; Fernandez-Herrero L A; Olabarria G; Berenguer J; Blaser M J; Kuen B; Lubitz W; Sara M; Pouwels P H; Kolen C P; Boot H J; Resch S
Universitat Rostock, Germany.

FEMS microbiology reviews (NETHERLANDS) Jun 1997, 20 (1-2) p47-98,
ISSN 0168-6445--Print Journal Code: 8902526
Contract/Grant Number: R01 24145; PHS
Publishing Model Print
Document type: Journal Article; Research Support, Non-U.S. Gov't; Research Support, U.S. Gov't, P.H.S.; Review
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed
Subfile: INDEX MEDICUS
In this chapter we report on the molecular biology of crystalline ***surface*** layers of different bacterial groups. The limited information indicates that there are many variations on a common theme. Sequence variety, antigenic diversity, gene expression, rearrangements, influence of environmental factors and applied aspects are addressed. There is considerable variety in the S-layer composition, which was elucidated by sequence analysis of the corresponding genes. In Corynebacterium glutamicum one major cell wall protein is responsible for the formation of a highly ordered, hexagonal array. In contrast, two abundant ***surface*** proteins from the S-layer of Bacillus anthracis. Each protein possesses three S-layer homology motifs and one protein could be a virulence factor. The antigenic diversity and ABC transporters are important features, which have been studied in methanogenic archaea. The expression of the S-layer components is controlled by three genes in the case of Thermus thermophilus. One has repressor activity on the S-layer gene promoter, the second codes for the S-layer protein. The rearrangement by reciprocal recombination was investigated in ***Campylobacter*** fetus. 7-8 S-layer proteins with a high degree of homology at the 5' and 3' ends were found. Environmental changes influence the surface properties of Bacillus stearothermophilus. Depending on oxygen supply, this species produces different S-layer proteins. Finally, the molecular bases for some applications are discussed. Recombinant S-layer fusion proteins have been designed for biotechnology. (197 Refs.)
Descriptors: *Bacteria--chemistry--CH; *Bacterial Outer Membrane Proteins --physiology--PH; *Cell Membrane--chemistry--CH; ATP-Binding Cassette Transporters--genetics--GE; ATP-Binding Cassette Transporters--immunology --IM; Amino Acid Sequence; Antigenic Variation--genetics--GE; Antigens, Bacterial--genetics--GE; Antigens, Bacterial--immunology--IM; Bacillus --chemistry--CH; Bacillus--genetics--GE; Bacillus--immunology--IM; Bacillus--ultrastructure--UL; Bacteria--immunology--IM; Bacteria --pathogenicity--PY; Bacteria--ultrastructure--UL; Bacterial Outer Membrane Proteins--genetics--GE; Bacterial Outer Membrane Proteins --immunology--IM; Base Sequence; Cell Membrane--physiology--PH; Cell Membrane--ultrastructure--UL; Cell Wall--chemistry--CH; Cell Wall --physiology--PH; Cell Wall--ultrastructure--UL; Corynebacterium--genetics --GE; Corynebacterium--ultrastructure--UL; Gene Expression Regulation, Bacterial; Genes, Bacterial; Lactobacillus--chemistry--CH; Lactobacillus --genetics--GE; Lactobacillus--ultrastructure--UL; Molecular Sequence Data ; Thermus thermophilus--chemistry--CH; Thermus thermophilus--genetics--GE; Thermus thermophilus--ultrastructure--UL
Molecular Sequence Databank Number: GENBANK/U38842; GENBANK/X91199; GENBANK/X92752
CAS Registry Number: 0 (ATP-Binding Cassette Transporters); 0 (Antigens, Bacterial); 0 (Bacterial Outer Membrane Proteins)
Record Date Created: 19971001
Record Date Completed: 19971001

6/9/10 (Item 10 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

11239569 PMID: 9023369
Nested DNA inversion as a paradigm of programmed gene rearrangement.

Dworkin J; Blaser M J
Department of Medicine, Vanderbilt University School of Medicine, Nashville, TN 37232, USA.
Proceedings of the National Academy of Sciences of the United States of America (UNITED STATES) Feb 4 1997, 94 (3) p985-90, ISSN 0027-8424--Print Journal Code: 7505876
Contract/Grant Number: R01-AI24145; AI; NIAID
Publishing Model Print
Document type: Journal Article; Research Support, U.S. Gov't, Non-P.H.S.; Research Support, U.S. Gov't, P.H.S.
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed
Subfile: INDEX MEDICUS
Programmed gene rearrangements are employed by a variety of microorganisms, including viruses, prokaryotes, and simple eukaryotes, to control gene expression. In most instances in which organisms mediate host evasion by large families of homologous gene cassettes, the mechanism of variation is not thought to involve DNA inversion. Here we report that Campylobacter fetus, a pathogenic Gram-negative bacterium, reassorts a single promoter, controlling surface-layer protein expression, and one or more complete ORFs strictly by DNA inversion. Rearrangements were independent of the distance between sites of inversion. These rearrangements permit variation in protein expression from the large surface -layer protein gene family and suggest an expanding paradigm of programmed DNA rearrangements among microorganisms.
Descriptors: *Bacterial Outer Membrane Proteins--genetics--GE; *Bacterial Proteins; *Campylobacter fetus--genetics--GE; *Gene Rearrangement --genetics--GE; *Inversion, Chromosome; *Membrane Glycoproteins; DNA, Bacterial--genetics--GE; Gene Expression Regulation, Bacterial--genetics --GE; Open Reading Frames--genetics--GE; Phenotype; Promoter Regions (Genetics)--genetics--GE; Recombination, Genetic
CAS Registry Number: 0 (Bacterial Outer Membrane Proteins); 0 (Bacterial Proteins); 0 (DNA, Bacterial); 0 (Membrane Glycoproteins); 0 (surface array protein, bacteria)
Record Date Created: 19970310
Record Date Completed: 19970310

6/9/11 (Item 11 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

10938661 PMID: 8730866
Generation of Campylobacter fetus S-layer protein diversity utilizes a single promoter on an invertible DNA segment.
Dworkin J; Blaser M J
Department of Medicine, Vanderbilt University School of Medicine, Nashville, Tennessee 37232, USA.
Molecular microbiology (ENGLAND) Mar 1996, 19 (6) p1241-53, ISSN 0950-382X--Print Journal Code: 8712028
Contract/Grant Number: R01-AI24145; AI; NIAID
Publishing Model Print
Document type: Journal Article; Research Support, U.S. Gov't, Non-P.H.S.; Research Support, U.S. Gov't, P.H.S.
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed
Subfile: INDEX MEDICUS; Toxbib
Wild-type strains of Campylobacter fetus contain a monomolecular array of surface layer proteins (SLPs) and vary the antigenicity of the predominant SLP expressed. Reciprocal recombination events among the eight genomic SLP gene cassettes, which encode 97- to 149 kDa SLPs, permit this variation. To explore whether SLP expression utilizes a single

promoter, we created mutant bacterial strains using insertional mutagenesis by rescue of a marker from plasmids. Experimental analysis of the mutants created clearly indicates that SLP expression solely utilizes the single sapA promoter, and that for variation C. fetus uses a mechanism of DNA rearrangement involving inversion of a 6.2 kb segment of DNA containing this promoter. This DNA inversion positions the sapA promoter immediately upstream of one of two oppositely oriented SLP gene cassettes, leading to its expression. Additionally, a second mechanism of DNA rearrangement occurs to replace at least one of the two SLP gene cassettes bracketing the invertible element. As previously reported promoter inversions in prokaryotes, yeasts and viruses involve alternate expression of at most two structural genes, the ability of C. fetus to use this phenomenon to express one of multiple cassettes is novel.

Descriptors: *Bacterial Outer Membrane Proteins--genetics--GE; *Bacterial Proteins; *Campylobacter fetus--genetics--GE; *DNA, Bacterial --genetics--GE; *Membrane Glycoproteins; *Promoter Regions (Genetics); Base Sequence; Genes, Bacterial; Molecular Sequence Data; Mutagenesis, Insertional; Phenotype; Variation (Genetics)

CAS Registry Number: 0 (Bacterial Outer Membrane Proteins); 0 (Bacterial Proteins); 0 (DNA, Bacterial); 0 (Membrane Glycoproteins); 0 (surface array protein, bacteria)

Record Date Created: 19960920

Record Date Completed: 19960920

6/9/12 (Item 12 from file: 155)

DIALOG(R)File 155:MEDLINE(R)

10500901 PMID: 7797493

Segmental conservation of sapA sequences in type B Campylobacter fetus cells.

Dworkin J; Tummuru M K; Blaser M J

Department of Medicine, Vanderbilt University School of Medicine, Nashville, Tennessee 37232-2605, USA.

Journal of biological chemistry (UNITED STATES) Jun 23 1995, 270 (25) p15093-101, ISSN 0021-9258--Print Journal Code: 2985121R

Contract/Grant Number: R01-AI24145; AI; NIAID

Publishing Model Print

Document type: Comparative Study; Journal Article; Research Support, U.S. Gov't, Non-P.H.S.; Research Support, U.S. Gov't, P.H.S.

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Subfile: INDEX MEDICUS

Campylobacter fetus cells may exist as either of two defined serogroups (type A or B) based on their lipopolysaccharide (LPS) composition. Wild-type strains contain ***surface*** array proteins (S-layer proteins) that have partial antigenic cross-reactivity but bind exclusively to LPS from homologous (type A or B) cells. Type A cells possess 8 homologs of sapA, which encodes a 97-kDa S-layer protein; the gene products of these homologs have a conserved N terminus of 184 amino acids. To further explore the structural relationships between the C. fetus S-layer proteins and their encoding genes, we sought to clone and express an S-layer protein from type B strain 84-91. The cloned type B gene (sapB) was similar in structure to the previously cloned type A gene (sapA) and encoded a full-length 936-amino acid (97-kDa) S-layer protein. Sequence analysis of sapB indicated that the conserved N-terminal encoding region in sapA was absent but that the remainder of the ORF (encoding 751 amino acids) was identical to that of sapA in spite of the nonconserved nature of this region among sapA homologs. Noncoding sequences both 300 base pairs 5' and 1000 base pairs 3' to the sapB and sapA ORFs, including the sapA promoter and transcriptional terminator sequences, were essentially identical. Southern analyses revealed that the sapB N-terminal encoding

region was conserved in multiple copies in type B strains but was absent in type A strains. Recombinant sapA and sapB products bound to a substantially greater degree to cells of the homologous LPS type compared with the heterologous LPS type, indicating that the conserved sapA- and sapB-encoded N termini are critical for LPS binding specificity. The parallel genetic organization and identity at the nucleotide level in both coding and noncoding regions for sap homologs in types A and B cells indicates the necessity of both homolog conservation and high fidelity DNA replication in the biology of sap diversity.

Descriptors: *Bacterial Proteins--genetics--GE; *Campylobacter fetus--genetics--GE; *Genes, Bacterial; *Membrane Glycoproteins; Amino Acid Sequence; Antigens, Bacterial--biosynthesis--BI; Antigens, Bacterial --genetics--GE; Bacterial Proteins--biosynthesis--BI; Base Sequence; Blotting, Southern; Campylobacter fetus--classification--CL; Conserved Sequence; Cross Reactions; DNA, Bacterial--analysis--AN; Lipopolysaccharides--analysis--AN; Molecular Sequence Data; Mutation; Plasmids; Restriction Mapping; Sequence Homology, Amino Acid; Sequence Homology, Nucleic Acid

Molecular Sequence Databank Number: GENBANK/U25133

CAS Registry Number: 0 (Antigens, Bacterial); 0 (Bacterial Proteins); 0 (DNA, Bacterial); 0 (Lipopolysaccharides); 0 (Membrane Glycoproteins); 0 (surface array protein, bacteria)

Gene Symbol: sapA; sapB

Record Date Created: 19950731

Record Date Completed: 19950731

6/9/13 (Item 13 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

10432731 PMID: 7721688

Protein shift and antigenic variation in the S-layer of ***Campylobacter*** fetus subsp. venerealis during bovine infection accompanied by genomic rearrangement of sapA homologs.

Garcia M M; Lutze-Wallace C L; Denes A S; Eaglesome M D; Holst E; Blaser M J

Agriculture and Agri-Food Canada, Animal Diseases Research Institute, Nepean, Ontario.

Journal of bacteriology (UNITED STATES) Apr 1995, 177 (8) p1976-80, ISSN 0021-9193--Print Journal Code: 2985120R

Contract/Grant Number: R01 AI24145; AI; NIAID

Publishing Model Print

Document type: Journal Article; Research Support, U.S. Gov't, Non-P.H.S.; Research Support, U.S. Gov't, P.H.S.

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Subfile: INDEX MEDICUS

Campylobacter fetus subsp. venerealis isolated from a case of human vaginosis was inoculated into the uterus of a C. fetus-negative heifer. Isolates obtained weekly from the vaginal mucus exhibited variations in high-molecular-mass-protein profiles from that of the original inoculum, which had a dominant 110-kDa S-layer protein. Immunoblots of the weekly isolates with monoclonal antibody probes against the 110-kDa S-layer protein and other C. fetus S-layer proteins demonstrated antigenic shifts. Genomic digests of the isolates probed with a 75-mer oligonucleotide of the conserved sapA region also indicated that antigenic variation of the S-layer is accompanied by DNA rearrangement.

Tags: Female

Descriptors: *Antigenic Variation; *Antigens, Bacterial--genetics--GE; *Bacterial Proteins--genetics--GE; *Bacterial Proteins--immunology--IM; *Campylobacter fetus--genetics--GE; *Campylobacter fetus --immunology--IM; *Membrane Glycoproteins; Animals; Antibodies, Monoclonal;

Campylobacter Infections--microbiology--MI; Campylobacter Infections--veterinary--VE; Campylobacter fetus --isolation and purification--IP; Cattle; Cattle Diseases--microbiology--MI; DNA, Bacterial --genetics--GE; Gene Rearrangement; Genes, Bacterial; Humans; Microscopy, Immunoelectron; Vaginosis, Bacterial--microbiology--MI; Vaginosis, Bacterial--veterinary--VE

CAS Registry Number: 0 (Antibodies, Monoclonal); 0 (Antigens, Bacterial); 0 (Bacterial Proteins); 0 (DNA, Bacterial); 0 (Membrane Glycoproteins); 0 (surface array protein, bacteria)

Gene Symbol: sapA

Record Date Created: 19950519

Record Date Completed: 19950519

6/9/14 (Item 14 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

10411573 PMID: 7896695

A lipopolysaccharide-binding domain of the Campylobacter fetus S-layer protein resides within the conserved N terminus of a family of silent and divergent homologs.

Dworkin J; Tummuru M K; Blaser M J

Department of Medicine, Vanderbilt University School of Medicine, Nashville, Tennessee 37232.

Journal of bacteriology (UNITED STATES) Apr 1995, 177 (7) p1734-41, ISSN 0021-9193--Print Journal Code: 2985120R

Contract/Grant Number: R01-A124145; PHS

Publishing Model Print

Document type: Journal Article; Research Support, U.S. Gov't, Non-P.H.S.; Research Support, U.S. Gov't, P.H.S.

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Subfile: INDEX MEDICUS; Toxbib

Campylobacter fetus cells can produce multiple S-layer proteins ranging from 97 to 149 kDa, with a single form predominating in cultured cells. We have cloned, sequenced, and expressed in Escherichia coli a sapA homolog, sapA2, which encodes a full-length 1,109-amino-acid (112-kDa) S-layer protein. Comparison with the two previously cloned sapA homologs has demonstrated two regions of identity, approximately 70 bp before the open reading frame (ORF) and proceeding 550 bp into the ORF and immediately downstream of the ORF. The entire genome contains eight copies of each of these conserved regions. Southern analyses has demonstrated that sapA2 existed as a complete copy within the genome in all strains examined, although Northern (RNA) analysis has demonstrated that sapA2 was not expressed in the C. fetus strain from which it was cloned. Further Southern analyses revealed increasing sapA diversity as probes increasingly 3' within the ORF were used. Pulsed-field gel electrophoresis and then Southern blotting with the conserved N-terminal region of the sapA homologs as a probe showed that these genes were tightly clustered on the chromosome. Deletion mutagenesis revealed that the S-layer protein bound serospecifically to the C. fetus lipopolysaccharide via its conserved N-terminal region. These data indicated that the S-layer proteins shared functional activity in the conserved N terminus but diverged in a semiconservative manner for the remainder of the molecule. Variation in S-layer protein expression may involve rearrangement of complete gene copies from a single large locus containing multiple sapA homologs.

Descriptors: *Bacterial Proteins--genetics--GE; *Campylobacter fetus--chemistry--CH; *Lipopolysaccharides--metabolism--ME; *Membrane Glycoproteins; Amino Acid Sequence; Bacterial Proteins--chemistry--CH; Bacterial Proteins--metabolism--ME; Base Sequence; Binding Sites; Blotting, Southern; Cloning, Molecular; Electrophoresis, Gel, Pulsed-Field; Molecular Sequence Data